# DOMINION ATLANTIC RAILWAY DIARY VIII

C. H. RIFF

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### The Milland Rallway Bridge Over the Shubennendie River, N.S.

By G. E. Thomas, M.W.S.E.

In this paper it is intended to point out in this paper it is more more period of the difficulties encountered and over-come in locating and sinking the caissons. This river may be called an arm of the Bay of This river may be caucit an arm or ran pay or Fundy, the title coming in through Minas-basin and up through Cobequid bay, rushes through the narrow passage with a velocity of in ft, per second on the neap-tide

of in fi. per second on the neap-tide to (5 ft. per second on the spring-tide. There are two tides in 24 hours, and the peculiarity at this point being, that we have all the flow in 2 hours and 20 minutes to ruh out; also, that on the incoming spring-tides we had a rise of 17 ft. of water in 20 minutes. This is known as the Ray of Fundy hore. I have heard it said of its coming on a level plane of 8 ft. I never saw it over 2 ft., and I think the mistake is made by the middation chark the history and making quite a wave,

and bars and making quite a wave, but I do not underrate the power of the fide in the Bay of Fundy.

The substructural work on this bridge consisted of 2 abutuneuts, 4 pedestals and 6 river piers, and are located as follows: Starting from the west side of the river with a concrete abutueut, at from the contract of the contra crete abutment, to be from the center of this was one but of requirete in this was not? Jair Decement, in the producting the next pair was placed at an equal distance from those; then pier i was focuted just 30 ft; east of those. For z, or the draw pier, was located 42 ft, from center of pier and the pier is the pier in the pier. t, and the other piers, were 219,50 ft. from center to center, and the eastabutuent was the same distance from

We started work on the west abutment and found a soft shale rock cropping out; we excavated through this about 12 ft, to a burd rock him. tom con this was placed the concrete, bringing this up to surface of ground, and their placing the mould and building up the work to the proper deviation. The same course was followed with the pedestals.

Fig. ( begins at low water and was furth up on the open. We had considerable difficulty in preparing the tock under this pier, as a was very uneven, and we had only one and a was very uneven, and we mad only one and a half hours in which to work on each tide. We succeeded in making a true and practically level buttom on the hard rock, into which we drilled and put in a number of anchor rods, to which was fastened the first course of crib turburs to the each consistency of each or the which was fastened the first course of crin-trinbers to the rock consisting of (128/12) in, white hemlock timber. If was show work, as it had to be very carefully done in order to secure success. After this course was securely lastened, it was much less difficultere care for the courses above, each being drift-helical to the one below. Hendock finder was used only up to ordinary low water, and above this point we used what is known in that country

as bay shore spring.

When this crib was built up 3 it, and calkwhen this crio was man up a to any caose ed, we put in the first 2 ft, of concrete. The reason for starting so early on this filling was that we could not put in on the low fide toore than this quantity. The time was so short during low water, before there was a return

THOMAS MCHATTIE.

Master Mechanic, Rastern Division, G.T.R.

el a very rapid tide water, bringing with it a heavy hody of said and mul, and below this came we had to protect the new made con-crete by year carefully covering it with carevas, placing on this large stones and filling in between these with small ones to break the between these with small ones to break the force of the incoming water. We learned several lessons betwee completing our work. This pier is was termed differently from the others, it being rectangular. The purpose of this was to enable a protection to be built organist it to keep off the ice, etc., during the water. This yield was not completed but wanter. This cede was not completed last

cason, winter coming on before it could he

The liest pneumatic pier to be put in was a no. 6, and was the one on the Colchester comno, 6, and was the one on the Colchester conity or east side; the plans of piers and the piers of
the showing the beat rock, etc., were furnish; who
ed by the M.R. Co,'s engineer, s This profile 3/2
proved hadre, as the rock did not natterialize
at the points indicated. Law water wifes
shown at a given elevation, and immediately
under the bottom of pier to the rock was shown
to be too close to enable as to put on a timber
groof and have this submerged, as we

groof and have this submerged, asswer copined at least 6 ft. for a working chamber in a puenuatic valson.

With the consent of the Chief En-

gineer I decided to build up the walls of the vaisson to It. high, putting on a cool of two courses of 12 x (2cin, tumber, lined with 15th, sprace plank, and valking the scanes, litting up at and supply shafts, and building up a temporary crib around the sides and temporary crib around the sides and temporary crib around the tide. After reaching the bed rock we removed this temporary roofing, etc., and carried up the concrete continuous to the bridge seat. This jovolved a large amount offersym work, but we large amount offersym work, but we large amount offersym work, but we large amount of a safe to put in a gineer I decided to build up the walls large amounts discover work, but was did not consider it safe to put in a timber road that would be exposed to the climate changes and subjected rapid decay. However, I found upon reaching the point indicated as took on the profile that we had stiffen always to the major to we would in such a second in such as the second in such as the second in such as the second in the second in such as the second in th a fit desper to excavate in order to reach had rock. This greater depth, if known in advance, would have onabled me to put in a permanent root on which we would have built dip the permanent concerte, thus not only saving labor, but very valuable time. financialistely eyeqlaying the heat ook under this pargive found a hard you. glomerate, embedded in which were large boulders, making it a hard material to excuvate.

Our next pier was no. 5. This was located 210,30 ft, from the centre of no. 6, and about 500 ft, from shores. The caisson for this pix was built to pass through the class of material. or pass through the class of material indicated on the profile, that is a soft material permuting rapid sinking; but in this we were disappointed, as from start to finish we encountered an entirely different formation to that represented. Not odd, was the material which we arrived

different formation to that represented. Not only was the material which we passed through different to that represented, but we had to go about (4 ft, further to find bed rock. This, of course meant a great expension). diture of time and money, especially in such a river as the Shubenaendie.

a giver as the Shubenaendie,

We guet with a strange accident in the early
stage of sinking this caisson. The tide was stage elesinking this enisson. The tide was due in half an hour and the men were getting endy to come out, as I never allowed them inside the eassen when the tide struck, the

The Midland Railway Bridge Over the Shubenacadle River, N.S.

(Continued from page 29,1.)

site. This caisson was out on a sand-bar, and the tide was so low there was absolutely no current at this point at the time; and as there was only 4 ft. of water in the working chamber, there was a very light air pressure. Due, I think, to some carelessness, the two doors of the air lock were allowed to be opened at the same time, and in this way there was a rush of water into the body of the cais-

son which so frightened some of the men, they made a stampede for the shaft, each trying to get there first. I was informed by some of the older pressure-men, who were not frightened and stood their ground, coming out after all the trouble was over, that if the men had kept cool all would have been well. However, we are not all built on the same lines, and we would all be better men were our first thoughts equal to our second. We lost four men, who were taken out dead. In three minutes from the time the air was lost from the chamber everything was again in working order and the water was out of the working chamber. In fact, it was not realized that four men were injured until they were found in the bottom of the caisson chamber. The accident was thoroughly investigated by the coroner, a competent jury and the friends of the deceased, and all excuerated the contractors. I would say there was not any change made in any of the machinery or appliances after the accident, the men showing implicit confidence in the system by returning to work as soon as the budies had been shipped to New York, except one who was buried in a little church-yard near the bridge site, and who, I was informed, had been a soldier in Her Majesy's service at Halifax. His fellow-workmen erected a very handsome stone over his grave giving an account of the accident.

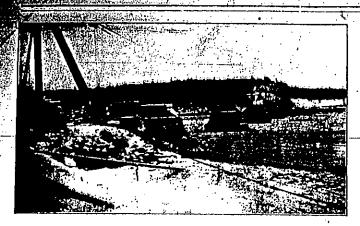


FIGURE 1. -- SHUBENAUADIE RIVER BRIDGE.

We experienced much difficulty in getting this caisson to the bod rock, having to take it about 14 ft, deeper than indicated, through a very hard temeious material, which mecessitated the use of a large quantity of dynamite. We could not make much impression on it with ordinary picks, and had to resort to drills, steel bars and explosives. However, we finally reached bed rock, and made a first-class concrete older.

a first-class concrete pier.

We next went over to pier 2, which is the draw pier and is located about 42 ft. from the centre of pier 1. It will readily be seen that the opening for vessels to pass is small. On pier 2 rests the small jack-knife draw. We experienced great difficulty in getting the rock under this pier level enough to receive our caisson, as at low water there was only 2\forall ft. at the other. This necessitated doing some under-water drilling and blasting before bringing the caisson down. The point of location of this pier was the most difficult to do this work in, as it had to be done at extreme low water, and the lower the water the greater was the concentration of the tide. The incoming tide, in time and force, depend the wind in the lower bay that would cause it

the wind in the lower ony that would cause a lo vary as quich as thirty dimites before it was expected, it washed away our steam drills and tools, swamping the heavy working float that was held by heavy steel wire cables. This float came up after the tide slacked up, but the tools were never seen afterwards. There is no use trying to handle these tides during the strong run. After a hard fight and persistent effort we finally got this rock so levelled up by the use of stone and clay thrown in on the slack tide from our cable bucket, that it was possible to put this caisson in position and get enough weight on top to hold it down. This enabled us to get inside of it and level the rock, taking the caisson down through the temporary filling and making a first-class job. We filled the working chamber and completed this pier up to the coping, none of which was set, however, until the concrete was well settled.

The next pier was no. 1, and with this one we had the least trouble. This is not saving it was easy work, but we had been well drilled into the work with the others by this time, that this one seemed comparatively easy. After the experience I had with the material and tocation of bed rock

The next pier was no. 3, and with this one we had the least trouble. This is not saying it was easy work, but we had been well drilled into the work with the others by this time, that this one seemed comparatively easy. After the experience I had with the material and tocation of bed rock in no. 5. I concluded I would after the form of the cutting edge and strengthen the caissons for piers 3 and 4. This was done by putting on the outside a course of vertical timbers, 12x 12 ins., letting them extend down about 12 ins. below the other side timbers, and bolting them through into the working clamber; putting in extra through rods, etc., the got no. 3 to bed rock and filled with no more than the to be anticipated amount of trouble. This, however, was the calm before the storm. We started in on no. 4, the last of the caissons, and which was known as the "Z. I. Fowler," named after the Chief Engineer of the Midland Ry. This caisson was launched and taken down to the bridge

This it did successfully; but before we could get down to renew the broken side cables, the said-bar had been removed, due to the presence of the calsson above it from the country of the presence of the calsson above it from side up, and I thought, perhaps, the contented which had been put in would roll out, but in this I was disappointed. You will notice there are times when the caisaon could be rolled back; but the same conditions would exist, and the momentum of rolling would have to be cared for. I concluded to try, as we might succeed. We put on the purchase and rolled it back; but the tables except, but it kept rolling. At once, I ducided to try, as we might succeed. We put on the purchase and rolled it back; but it kept rolling. At once, I ducided to trip, as we might succeed, we put on the purchase and rolled it back; but it kept rolling. At once, I ducided to trip, as we might until the moting pear, which was now on, the thide it flanged to the bank. It did all I anticipated it would until the moting pear, which was now on, the thought too much strain on the cable and parted it. The calsson then floated up the river on the strong flood tide; and we followed it in our yawl boats and with strong manificians. We rowed out to meet the caisson, and in this way navigating it into slack water than the calsson diffied and securing a 1,000-ft, line to a tree on shore, we rowed out to meet the caisson, and in this way navigating it into slack water then had to be the strong mit into slack water then had to be treed to the strong manification and the calson and it into slack water then had to be treed to the strong manification and securing a 1,000-ft, line to a tree on shore, we rowed out to meet the caisson, and in this way navigating it into slack water they had to a securing a 1,000-ft.

followed it in our yawl boats and with strong mannagines. We rowed out to meet the caisson, and in this way navigating it meet the caisson, and in this way navigating it into slack water, then landing it until the returning tide, when, with the assistance of our tug boat, we took it on the early eith tide to our building jard, there taking out the concrete, using dynamite. We then wrapped four 1½ inch steel hawders on the cach, and taking the hading parts to separate engines, we rolled the caisson back into position. Notwithstanding parts to separate engines, we rolled the caisson back into position. Notwithstanding that this caisson had endured such hard usage, it was but very slightly damaged. We at once made the necessary repairs and usage, it was but very slightly damaged. We at once made the necessary repairs and the extrement of the caisson, two difficulty in filling this crib on this caisson, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the river, seemed to act like so many wedges, and made the opening for water passage in the rece, water passage in the rece

site in good time and without accident, getting it about it out into position, and leaving 12 ft. above the direct centre fine of the bridge. We did this to enable us to put on the first lot of concrete as the flotation of the limber in the exisson was so great, and the time between the tides so short, we could not get weight it in one fide to hold it down. We used two day-light tides to do this work. We put in all the concrete we wanted on the first fide, the o short, we could not get weight enough on best morning we located it exactly in position and were anxiously watching it settle. At this time the water was passing freely over the sand-bar directly above us; this seemed to stop instantly and the bar was exposed; this caused the water to strike the west bank of the river, concentrating the full force of the falling tide against the upstream west side of the enisson, which parted the three steel cables and forced the caisson out of position, and in five minutes it was hard aground 8 ft. out of nosition toward the east. All the move ing cables were rigide teeft the broken ones, These we had to renew and the others to slack up before the lide came again to allow the caisson to rise with the incoming tide.

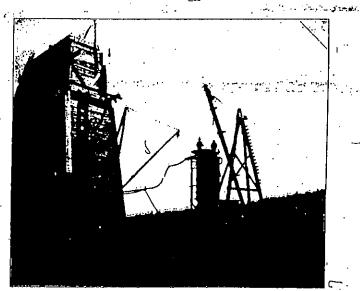


FIGURE 2.- PIER 1, SIFCHENACADIE RIVER BRIDGE.

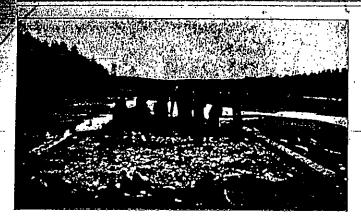


FIGURE 3. - FIER 6, TEMPORARY ROOF REMOVED.

found it was better to keep the concrete close up to our cribbing, thus preventing the scooring action of the water falling over the top of the crib. By watching the changes of the current in the river. I was enabled to so place my direct cables as to hold this calsson that had once got away from one. It certainthat had once got away from me. It certainly was a very trying and auxious time. The men who stood by me through the placing and sinking of those caissons did their full duty, and I assure you it was a very nervetrying position. The plan adopted by me to locate those caissons was, first, to take the caisson down from the building yard to the mouth of the five-mile river, which was about 300 yards above the centre line of the bridge. In order to do this, we had to start at certain periods on the tide, there being so many changes of the current in this river. The distance from the building yard to the bridge site was only a mile, but there were bridge site was only a mile, but there were so many swirls and eddies we bad to keep lines on shore the whole distance and check up on the cable at the lower end. Another strange feature of those tides is, that the body of water would be falling and still a very strong current on the surface running up; and it a certain time of each tide, without lay notice, the whole river would be run-

off Ady notice, the whole river would be runs out Ady notice, the whole river would be runs and out with apparently incasinible force, than a fit of and if not prepared for this you would move sweep oars down stream with it. We were taught more than one lesson this way. There is absolutely not over 10 minutes on the top of high water when you can handle any floating stock at the site of the Shubenacadic bridge. I saw this upon my first visit to the bridge site, and concluded to use a cableway across the river, the distance being about 1,400 ft. I put up two towers. The one on the concept is the content of the concept bank, and was I saw this apon my list visit to the bridge site, and concluded to use a carbleway across the river, the distance böilg about 1,400 ft. I put up two towers. The one on the west side was built on the marsh bank, and was about ft ft. allove low writer, while the one on the cast side was built on the bluff, and was about the same height above the water, though the tower being on higher ground was shorter in the posts. Those towers were very strongly built. I also took the precaution of putting some wire guys to the heads of the towers. We did this to guard against the wind strain which came up with the flood tide, sometimes with considerable force. We used a 2½-in, diameter cable with the ordinary working steel wire ropes. The main cable was anchored back in the ground, the end on the west side heing held in marsh mud. With this we had to be very careful, and to overcome any possible chance of its giving way, we used as an anchor four very large hembock logs buried in -a deep trench, the front of the trench being planked up with 3-in, plank. The main sheave for passing the main cable through was securely lashed to those four logs with 3-in, ilexible steel wire rope, each part being brought to a ible steel wire rope, each part being brought to a proper hearing, and giving each part its share of the load. We loaded the surface of the ground with field stone. This cable never moved or gave me any trouble, and we have landled between tides as high as 116 buckets of concrete, each bucket containing 32 cubic feet.

The machinery never gave me any trouble further than the ordinary wear and tear of machinery driven under such hard work as this was. I cannot speak too highly of the cable system. I would not say this work could not have been done in any other way, but I would not like to try any other way known to me. We had quite a time getting the main cable over, as the ever-present tide came on us when we were about two-thirds way across; but we completed our task with-out accident. We also experienced great way across; but we composite accident. We also experienced great difficulty in getting our supplies for the work. The stone for concrete was quite a problem. We used large quantities of small boulders which had been washed down the river, and we also found a vein of about 5 ft, of quartz-ite on the river bank, which we quarried when the tide would allow. You see the tide en-

ters into all our arrangements. The cement selected by the Dominion Govrument engineer was manufactured in England and shipped to Halifax by steamer, and from Halifax to Stewiacke siding by rail, un-loaded again and taken down to the bridge site in small scows, the distance being about

The sand-bars are so numerous and change so often one cannot take up a boat with more than 2 ft, draft, and this has to be builded with sweep oars, and only make from three to four

trips per week, up on one lide and down on installifyou are not nipped or caught. You see the lide it somitions and in the same reason. We lind to go a fille of the lide it so fille of the lide it is sometimes we had to go a fille of the lide of the same reason. We limb to go a fille of the lide of the same reason. We limb to go fille of the lide the same reason. We limb to go fille of the lide that the same in the lide the same limb to go and this we had to go in selection and this we had a small tag we sent several times, but we generally had complaints from the captain shout the risk. Our coal was quite an item, as this had to be brought either, from Passburon-over-the Intercolonial Ry, to Stewiacke, and then barged down to the bridge site. It was a common occurrence to see the barge with a coal or cament pass the site, going down stream, the tide being so strong it could not make a landing. Even the water for the boilers had to be boated to the site, about 2 miles, in barges, and only one trip could be made with each barge on a tide. We had to stop sink, ing the caissons on more than one occasion on secount of labe of teach water for the biles.

made with each barge on a tide. We had to stop sink ing the caissons on more than one occasion on account of lack of fresh water for the boilers.

We moored the caissons with not less than six steel wire cables on each, those being not shorter than from 600 to recool it, each, and fastened to either large another recool it, each, and fastened to cither large another botts put into the rock in the river bed. The dates were fastened with elips to those and work as attached to the caisson by a specially devised mooring gear. After the caisson had been properly weighted with concrete we would put our machinery barge alongside, mooring it in a similar manner. We would take our water barge alongside the machinery barge and pump the water out as rapidly as possible. We lost all of the barge load of fresh water on several occasions by the tide breaking in on several occasions by the tide breaking in-over the water seew. We tried on one occa-sion to bring coal off on a barge and use it from this barge, but the incoming tide settled this point by standing the barge on end, dumping the coal, then fording the moorings and breaking the barge into two parts, After this I can all the coal out by the cable way, which added much more work to our already hard worked cable.

Machinery, derricks and barges were built by us as strong as wood and from could make by is as strong as wood and from could make them, knowing as I did the rough usage they would have to encounter. In the barges I used bardwood frames and sprace sides, strongly trussing them throughout; they were 80 ft. long and 22 ft. wide, and 7½ ft. deep, with a good flare at each end. The mooring timbers were very stepps of 13-by 14 in, hardwood, and with a very heavy warping chock on each end. All of which

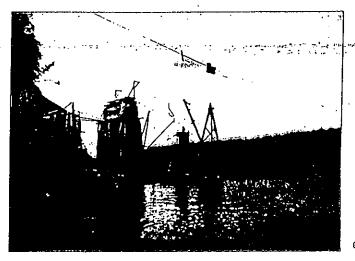


FIGURE 4. -- PIER 1 AND WORKING ON PIER 2 FOR DRAW SPAN

MR. THOMAS—I will simply say that what has been might occur again, and it was very evident that at some time the river bed was

evalent that at some time the river bed was down at bed rock, and at some time in the future the water might go down ugain to the bed rock. I can never do my work too well, for I realize that human life is concerned in the integrity of the foundations of these piers.

GEN. W. SOOV SMITH—What appears to me most singular, in Mr. Thomas talk this evening, and what might rocham into active active.

evening, and what might perhaps invite criti-cism (which would not be in good taste in the absence of those who designed the world) in the light of American engineering, is the fact



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FIGURE 5.- CAISSON FOR PIER 4 BEING ROLLED OVER:

was necessary, as we not only had the racking of the machinery, but the sandbars were so changeable that, generally, at low water, the barges would be on the bottom and very unevenly landed. Our machinery consisted of an ordinary pneumatic plant, viz.; compressors, pamps, boilers, electric lighting machinery, etc. We also had in the hold of the machinery barge a large number of barrels connected with pipe, which we used for water storage, the plant being very compact. Our derrick barge was a duplicate of the machinery barge; it was surmounted with a very strong derrick and carried an 8½ by 10 in, double winding engine. The coping stones for those piers were quite heavy, four on each pier weighing over 8 tons each. Setting those stones with a long boom was no child's play, with the strong running water that was there. We also had several derricks along, the wharf on shore, also at the shiptyariff where we built the caissons and one up the river at Stewiacke. This work called for more machinery than ordinary work does, due to the time affect of the machinery bard on the long down as the called, also braced across and through with 1½-in, rods put in from side to side. A heulock roof 3 ft. thick was planked over and the seams calked. From this point we started our crib work, this also heing calked on the outside. They were built sharp on each end, and each of the ends was faced with hardwood 6 in, thick, which was fastened on with ½-in, steel plates, fastened on with ¾-in, iron ray bolls. The cribbing was 12 by 12 in, buy shore sprace. We did not use any timber ties, but in place used 1½-in, through rods with turn-buckles. There were four of these put in every third course of timber.

put in every third course of timber.

Our concrete was of two classes, viz., hearting and facing this was Our concrete was of two classes, viz., hearting and facing) this was mixed on a platform on the west side of the river under the cable way and transferred out to the various piers. In all cases Portland count was used. We also built into the concrete book rods unde of 4, in, round iron, which overlapped each other, thus making a continuous bond. These were put in vertically and horizontally. This work was designed by the Chief Engineer of the Midland Ry., Z. I. Fowler, of Ottawa, Ont. He is a very able angineer, and of whom I cannot speak too highly. I found in Nova Scotia a warm-hearted and energetic people, ever ready to extend the hospitality of their homes and hearts to us. The work was done under the supervision of Dr. M. Murphy, the Nova Scotia Government Engineer, whom I found a very able and computent engineer. Mention should also be made of Mr. Douglas, assistant to the Dominion Government Engineer, and J. J. Taylor, resident engineer. Trare, who were concerned in the work and to whom due credit should be accorded.

The foregoing paper was read before the Western Suciety of Engin-eers at Chicago, the reading being followed by the discussion given

Mr. Firther—In describing the foundations for one of the piers Mr. Thomas mentions that there was a hard material that was very difficult to remove. Why was it necessary to remove it?

that the bridge should have been planned as it was and that there should have been such a lack of knowledge of the conditions under, which these foundations have been built, and even the material taself upon which they we're to rest was not well known. The soundings has prively deceptive. It would certainly appear that that, of air situations, was me in which a long span would have been advisable, first, on account of the extreme difficulty of putting in the piers, find, second, because of the obstrict from the part of those conducting this work, as has been indeed evident to us. The greatest difficulty was called for on the part of those conducting this work, as has been indeed evident to us. The greatest difficulty was called for on the part of those conducting this work, as has been indeed evident to us. The greatest difficulty was called for on the part of those conducting this work, as has been indeed evident to us. The greatest difficulty was called for on the part of those conducting this work, as has been work had been obtained in the first place. If a place of the existing conditions, the difficulties would have been very largely reduced and dapting itself to the existing conditions, the difficulties would have been very largely reduced and dapting itself to the existing conditions, the final besult, it seems to me, very match better.

Mr. Thomas—With regard to the proper sonning and adapting itself the part of the proper sonning and all the surveys of the part of the part

stands his business.

Mr. Strioner. I would like to ask what are-

MR. STROBAL TWOMIN DRAWN WAS A TEMPORARY THOMAS Size under coping, 24 ft. long by 8 ft. wide; coping, 2 ft. thick, of

Mr. Strong, ... What batter?

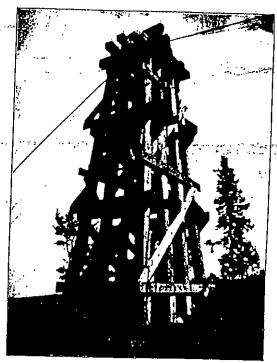
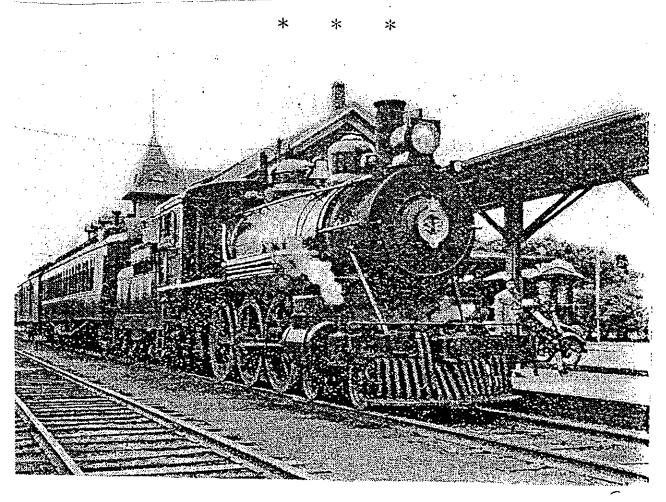


FIGURE 6. -TOWER SUPPORTING CABLE RAILWAY.

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ne Kingsport Local at Kentville, N. S., on the Dominion Atlantic (Canadian Pacific)

Railway Age—November 27, 1943

## A C.P.R. Locomotive Conversion.

The compound locomotive is going out of use on Canadian and U.S. railways, being replaced by the modern power unit equipped with superheater and piston valves and other refinements of locomotive practice. The accompanying illustrations show a 10-wheel 4-6-0 compound locomotive, built in 1904, and using saturated steam, which was converted into a simple locomotive, equipped with superheater, at the C.P.R. Angus shops, Montreal, recently. Fig. 1 shows the original locomotive after stripping and dewheeling, but before the removal of the original cylinder castings, the low pressure cylinder and slide-valve steam chest being evident. New piston valve cylinder castings were applied, necessitating slight modifications in the front ends of the frames; new front and back tube sheets, to take the superheater flues, were



Locomotive Conversion at C.P.R. Angus Shops, Montreal.

Fig. 2. The resulting efficient simple superheated locomotive.

Locomotive Conversion at C.P.R. Angus Shops, Montreal.

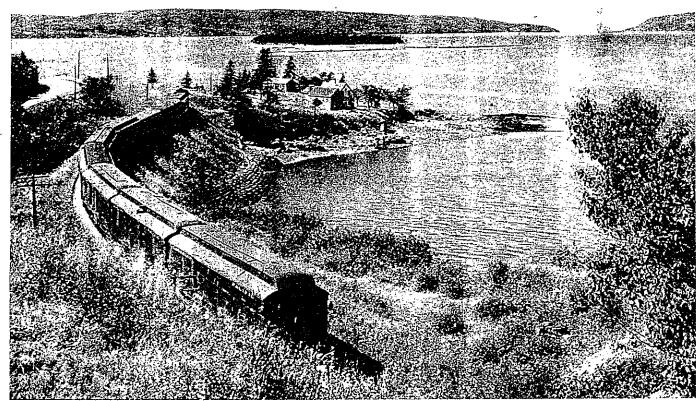
Fig. 2. The resulting efficient simple superheated locomotive.

put in, and a V-H superheater was installed. The Stephenson valve gear was retained, but modified in design. A new dry-pipe was used, and the firebox was equipped with arch tubes and brick arch. Fig. 2 shows the remodelled locomotive on completion of the job. There can be no doubt that the rebuilt locomotive, by its greater power and superior economy, will soon make good the cost of the work of modernizing.

January 1922 P 36
Canadian Failway and Warine
World:



# In the Land of Evangeline



Nova Scotia Bureau of Information

Dominion Atlantic No. 95 follows the shoreline of the Annapolis Basin between Annapolis and Digby. Her steel coaches are ahead of the baggage cars.

### BY M. ALLEN GIBSON

S MOKE, steam and the first glimmer of dawn dimmed the lights in the train shed at Halifax, Nova Scotia, as the overnight mixed train from Yarmouth, which carries a Pullman, eased to a stop on track 5. A carman cut Pacific No. 2552 from the train and another run was ended for the Dominion Atlantic Railway's train No. 100.

Trip-weary, sleepy-eyed passengers hurried toward the station concourse with scarcely a glance for the engine or for the crew which had brought them safely through the night. Perhaps a few even complained about the journey, forgetting the ease and comfort which had been theirs on the 217-

mile trip. Sixty-five years ago such ease and comfort were unknown. Indeed, at that time any trip from Yarmouth to Halifax was long and arduous, and it was made even more difficult by stopovers and transfers. But then it's human nature to complain, for one generation soon forgets the advantages it enjoys over the previous generation.

Most people who know the Dominion Atlantic, however, are quick to defend it as a "mighty good railway," although they may not admit it at 6:20 a.m. after an all-night trip from Yarmouth. The "Land of Evangeline Route" ranks with the best of the short-line carriers. It taps the rich agricultural district of the Annapolis Valley, serves several industrial and seaport towns, and connects Halifax,

the capital of the province, with one of the most highly developed parts of Nova Scotia.

The Dominion Atlantic offers good service with a total trackage of about 300 miles, modern equipment, and a fine fleet of locomotives. Nerve center for the line is Kentville, where all engines and crews on through trains change. Here too are machine shops, paint shops, dispatchers' offices. and all the necessities of a railway headquarters.

Not only does the Dominion Atlantic offer good service on its own line. but it provides excellent interline connections. At Yarmouth it connects with Canadian National's Halifax & South Western, which runs to Halifax along the south shore of the province. A Canadian National branch

OFF THE BEATEN TRACK

### Sixty-five years have made a profound change in Nova Scotia's transportation system. Let's take a look at the modern Dominion Atlantic

from Bridgewater, on the south shore, connects with the Dominion Atlantic at Middleton, and the Dominion Atlantic also connects with the Canadian National's main line at Truro and at Windsor Junction, 12 miles out of Halifax. Actually the Dominion Atlantic operates over the Canadian National from Windsor Junction to Halifax.

上のことは動物をなり、最後からいるのとというからま

The Dominion Atlantic was incorporated in 1895, but the events of the preceding 35 years are interesting and significant enough to deserve mention.

The Windsor & Annapolis Railway was the forerunner of the Dominion Atlantic. It was opened for traffic on August 19, 1869. An agreement was made in the same year with the government-owned Intercolonial Railway, which had a line from Windsor to Halifax, to permit through traffic to Halifax. In 1892 the Windsor & Annapolis bought out the Cornwallis Valley Railway between Kentville and Kingsport. Then in 1894 the Windsor & Annapolis purchased the Yarmouth & Annapolis Railway, which had been known until the year before as the Western Counties Rail-

You might wonder why so many short railways existed in such a small district. Geography was an important reason. Several large rivers cut across the present right of way, making construction of a through line impossible. In fact, it was not until 1891 that the 18-mile stretch between Digby and Annapolis was completed. This section connected the Western Counties Railway and the Windsor & Annapolis, and involved the construction of two large bridges. For years this gap, which travelers had to cover by boat or stage, was known as the "missing link."

No history of the Dominion Atlantic would be complete without mention of the two great "acts of God" which caused the infant railroad serious difficulties. In 1869 the Saxby Gale washed out miles of the roadbed east of Wolfville. Then in 1905 snows of unprecedented proportions completely blocked the line. Traffic was suspended for weeks. Students and citizens from all along the line were pressed into service in order to get the trains rolling again.

Also in 1905 the Midland Railway,

running between Windsor and Truro, became part of the 10-year-old Dominion Atlantic, and the line adopted standard operating rules. On January 1, 1912, the Canadian Pacific acquired the Dominion Atlantic as a subsidiary under a 999-year lease.

The prosperity of the Annapolis Valley, through which the Dominion Atlantic runs, has depended a great deal upon agriculture. Here are some of the finest apple orchards in the world. Consequently, warehouses and apple processing plants line the track all the way from Digby to Windsor. Mixed farming, too, plays a large part in the economy of the area. The Dominion Atlantic has filled an important place in the agricultural development of the Annapolis Valley.

A very important source of revenue for the railway has been the gypsum quarries near Windsor. Through the summer months the Dominion Atlantic carries the gypsum from the quarries to Hantsport, where it is shipped by boat to processing plants in the United States. During winter months, when shipment from Hantsport is impossible because of ice, the gypsum is shipped from Deep Brook, with the Dominion Atlantic still acting as the initial transportation medium.

Several smaller industries, lumber, pulp, leather, textiles and peat moss add their products to the freight trains of the Dominion Atlantic. The freight volume is further increased by the great quantity of commodities needed in the thickly settled area served by the "Land of Evangeline Route." Acadia University at Wolfville, some private schools, and armed-services establishments at Deep Brook and Kingston add substantially to the passenger traffic over the line.

The officials of the Dominion Atlantic recognized early the possibilities in the tourist traffic, and great advances have been made by the Canadian Pacific in promoting it. Summer hotels are in operation by the railway at Yarmouth (Lakeside Inn) and at Digby (The Pines). The road also operates the Cornwallis Inn at Kentville, offering year-round accommodations.

This part of Nova Scotia has had a fascinating history, and the Dominion

Atlantic has capitalized on it to further the tourist industry. But railway officials have not commercialized the historical assets of the province. Thousands of tourists come annually to a beautiful railroad-established and maintained memorial park at Grand Pre, near Wolfville, the village of which Longfellow wrote in his poem, Evangeline. The old fortress at Annapolis Royal is another historical attraction which the Dominion Atlantic has publicized widely.

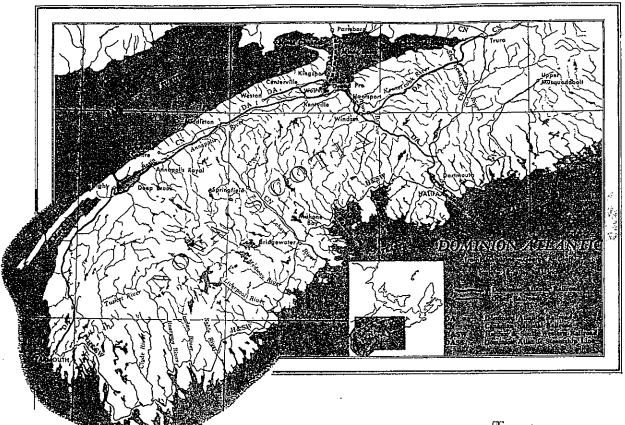
Dominion Atlantic officials, long aware that the welfare of the railroad depends upon the welfare of the province, have been active in working for the advancement of that part of Nova Scotia which the railroad serves.

Early locomotives on the Dominion Atlantic bore such prosaic names as Mayflower and Gabriel, but in more recent years the railway turned to Nova Scotia's history for locomotive names. This practice was lost in the confusion of the Second World War, and today nameless locomotives haul the trains.

There was something thrilling about such names as Cornwallis, founder of the city of Halifax; Membertou, first Indian in the region to be converted to Christianity, and DeMonts, founder of Port Royal in 1604. (This town, now known as Annapolis or Annapolis Royal, is the oldest in North America north of Virginia.) These historical figures had their names emblazoned on the red Dominion Atlantic locomotives, but even the red color disappeared during the war. It was a fitting tribute, too, that the names of those who helped develop the country were given to locomotives which were playing a further part in that development.

The Dominion Atlantic has no name trains. In the years before World War II the Flying Bluenose ran during the summer months, and was the crack train of the line. But it also appears to have been a war casualty; it is not on the timetable now.

A GLANCE at a map of Nova Scotia will show that the area served by the Dominion Atlantic occupies a peculiar position. Land travel from any part of Nova Scotia to the rest of Canada



or the United States has always been difficult. By water, on the other hand, the distance is negligible. For instance, a trip from Yarmouth to Boston involves a land journey of 963 miles, while by water it's only 235 miles. From Digby to Saint John, New Brunswick, is 43 miles by water, but 408 miles by land.

It is small wonder, then, that the Dominion Atlantic, as soon as it was firmly established as a railway, began to look seaward with the view to extending the area and effectiveness of its service.

The Windsor & Annapolis made a beginning in 1893 with service on Minas Basin between Parrsboro, Kingsport, and Wolfville. The first vessel on the run was the sloop-rigged, 25-ton Evangeline. Other ships sailed the route until 1926 when the 200-ton Kipawo, with facilities for carrying automobiles, was put into service. The Kipawo (named from the first letters of its three ports of call, Kingsport, Parrsboro and Wolfville) provided an excellent short cut for travelers to and from the western part of the province.

However, the Minas Basin service was another war casualty. The Kipawo was appropriated for government service, and to date no vessel has replaced her. But when it was operating it had some extraordinary problems to overcome. Ice caused sus-

pension of the service during winter months, but the big problem was tides of as much as 50 feet. At high tide the *Kipawo* could dock easily at Wolfville, while at low tide there was no salt water within a half mile of the wharf.

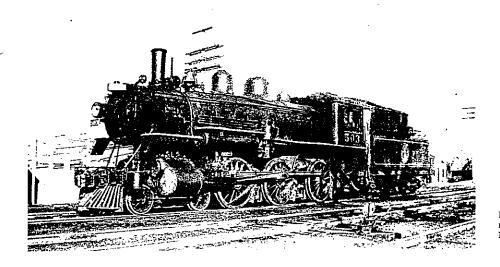
Service between Digby and Saint John across the Bay of Fundy connects the Dominion Atlantic with its parent line, the Canadian Pacific, and gives the CPR connections over its own lines into Halifax. The practicability of such a link was recognized as early as 1895 when a paddle-wheeler, the Prince Rupert, was purchased for the run. The Dominion Atlantic owned the ship, but it appears that the Canadian Pacific had a finger in the pie even then. The CPR formally took over in 1913, and today operates the modern 4000-ton Princess Helene on the bay.

Early steamship service between Yarmouth and Boston was an important source of business, especially tourist trade, for the young Dominion Atlantic. In 1897 the railroad inaugurated its own service between these two ports in competition with the Yarmouth Steamship Company. For years the competition was bitter, but in 1901 the Dominion Atlantic bought out the Yarmouth line and in 1904 extended its service to New York. When the Canadian Pacific took over the Dominion Atlantic in 1912 its first important action was to dispose of this ocean-going service and sell it to the Eastern Steamship Corporation. Today's service on the "Land of Evangeline Route" is comfortable and adequate. Courtesy and service are keynotes on the Dominion Atlantic, offered in the best tradition of the Canadian Pacific. The daily-except-Sunday runs between Halifax and Yarmouth carry modern coaches and buffet-parlor cars, and the night trains carry sleepers.

The make-up of trains No. 95 and 98, the westbound and eastbound expresses, is a peculiar sight to many: the engine, a mail car, the buffet-parlor, the coaches, and then the baggage and express cars. This is due to an order of the Board of Transport Commissioners which makes it illegal to operate a passenger train in Canada with wooden cars between the locomotive and steel coaches. Until such time as all cars used on these trains are of steel or have steel underframes, the irregular consist will be used.

Motive power is all Canadian Pacific, now that the last of the Dominion Atlantic locomotives has been retired. Freight engines carry the CPR name on their tenders, while passenger engines carry the name and crest of the Dominion Atlantic. Class G-2 Pacifics and Ten-Wheelers of the D-4, D-6 and D-10 classes are used.

Today the Dominion Atlantic is prospering. What the future has in store we don't know. But the Dominion Atlantic should, and probably will. continue to play a prominent and prosperous part in the development of Nova Scotia.

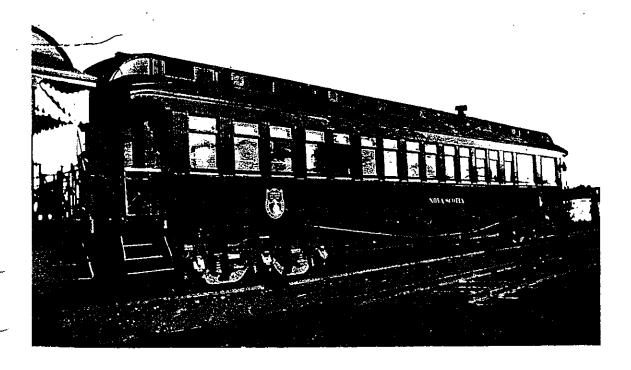


Ex Canadian Pacific D-6-a class Ten-wheeler number DAR 503 is seen in 1941 in Kentville Nova Scotia.

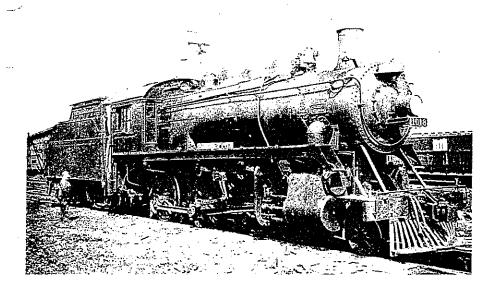
DOMINION ATLANTIC RAILWAY -- Land of Evangeline Route
In 1866 the Windsor and Annapolis Railway was incorporated to build a railway line between the two cities of its corporate name in Nova Scotia. The first train was operated on August 19, 1869 from Annapolis to Grand Pre N.S. and in 1871 it acquired running rights on the Intercolonial Railway to Halifax. The line from Yarmouth to Halifax was completed in 1891 by the Western Counties Railway. In 1893 the name was changed to Yarmouth and Annapolis Railway and in 1894 the two lines were consolidated under the name Dominion Atlantic Pailway. The Midland Railway, running from Windsor to Truro N.S., was purchased by the DAR in 1905 and finally on January 3, 1912, the Dominion Atlantic was leased to the CPR for 999 years. Their main diesel power at

present is CPR 8100-series SW1200RSs.

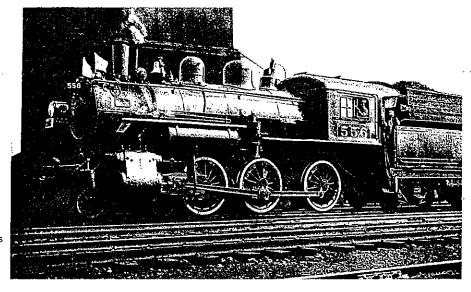
Dominion Atlantic Railway wooden car "Mova Scotia" is seen in the colours of its original owner, having been built in 1896. The car then became property of the Canadian Pacific as their business car #7, being assigned to the Superintendant of CP's Farrham Division. In 1963 the car was purchased by the Upper Canada Railway Society retaining the name "Nova Scotia" after CP's re-numbering. The Society used the car until it was replaced by "Car 13" (ex CPR "Cape Pace") in 1969. The car was then sold to the London Ontario Historical Board. The car's dimensions are 18,941 m.m. over end sills and weighs 53.5 tonnes



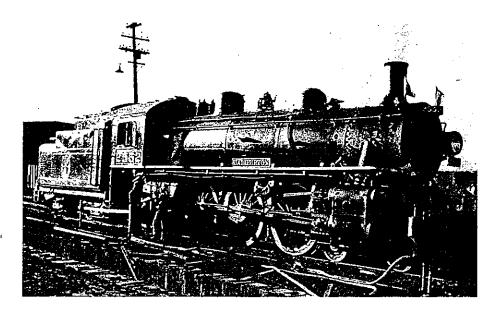
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Dominion Atlantic Ten-wheeler no. 1918 is inspected by a DAR railway worker.

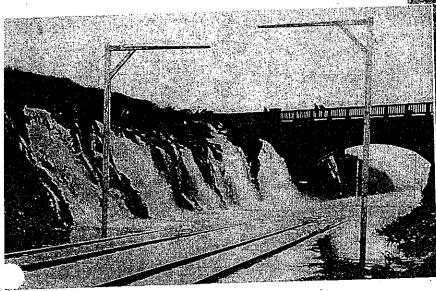


Another Dominion Atlantic 4-6-0, number 556, and its crew pose for their photograph.



Dominion Atlantic Railway Pacific "Haliburton" rests on the shop track after a day's work on the "Route of Evangeline".

# Rains Came To Nova Scotia



The force of the water gouged out a portion of the roadbed under the track in the vicinity of Fairview (Halifax).

Miniature falls cascading down the side of the rock cut in the vicinity of Bayers Road Bridge, Halifax.

E central section of Nova Scotia scently experienced one of the violent rainstorms for the period recorded. It rained a torrential pour for twenty-four hours with result that railway lines were ed out, also sections of highways, rs were flooded and, in the country icts, houses, out buildings and e were marooned. For the twenty-hour period the rainfall totalled tehes.

nadian National train services in out of Halifax were disrupted, also een Stellarton and Truro, Stellarind Pictou, Pictou and Oxford Jct., mouth and Upper Musquodoboit, he Halifax and Southwestern Diviand on the branch between

Bridgewater and Middleton. The eastbound Ocean Limited, Scotian and Maritime Express were held overnight in Truro and all trains out of Halifax were cancelled.

Main line train services were resumed with a minimum of delay. The branch lines were restored for service as early as possible. Due to precautions taken there were no accidents so far as the railway was concerned and the only disability encountered was that of delay.

The brunt of the storm seems to have been borne by Halifax and the district surrounding. The city suffered a milk shortage in consequence of the interruption of transportation.

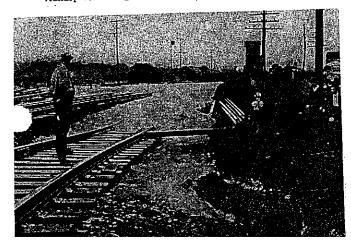
At Stellarton a stream of water

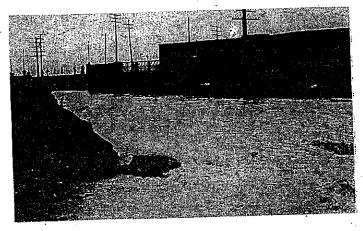
poured into the roundhouse carrying with it mud and cinders which filled the engine and turntable pits and flooded the machine shop and interior of the roundhouse.

Some concern was felt for the railway bridge over the Stewiacke river near Stewiacke due to the breaking of a log boom some distance up the river and the consequent jamming of the logs under the bridge. Fortunately the bridge held and traffic was able to pass over it the following morning at a slow speed. The photographs give some idea of the extent of the storm.

Rigid censorship was imposed throughout the period and the outside world was not informed of the situation until some time later.

The rushing torrent of water that covered the tracks in the vicinity of the engine terminal at Fairview (Halifax).





Scene at Fairview underpass, just outside of Halifax. The highway here is covered with about fourteen feet of water.



### Nova Scotians Hail New Dayliner Service

By ROY E. HOWARD

GLEAMING IN brilliant August morning sunlight, the Dominion Atlantic Railway's new "Dayliner"—9058——glided into Halifax Station to be met by a battery of newspaper reporters, TV cameramen and radio announcers. On hand, too, were provincial and civic officials, for this was the morning of August 15, opening day for "the tour of the Dayliner" as it was to become known throughout Western Nova Scotia.

The four-day tour, during which the new equipment was introduced to the public all along the Dominion Atlantic's main line from Halifax to Yarmouth, was reminiscent in many ways of the first trip of "The Canadian". To be sure the crowds that greeted 9058 were on a lesser scale, but there

was no lack of enthusiasm.

In all, more than \$1,000 persons turned out for a look-secont the spanking new train, and many hundreds more gathered along the right-of-way to wave her along as she passed farmlands en route from station to station, and at every town that boasted a newspaper or a radio station, there was a representative on hand to record transport news in the making. Civic officials, too, turned out to see the new rail direct car. The pensioners brought their grand-children to see this marvel of modern transportation;

### Throngs Turn Out

In some towns more than half the population turned out to inspect the new transportation facilities—first brand new passenger equipment to be seen on the route in many a moon. At both Digby and Yarmouth the car had to be kept on display longer than the announced period so that those waiting could be accommodated.

They came, they saw and they were impressed, for even today, after the hectic post-summer vacation travel season, the standing room only, sign has to be hoisted once in a-while on the 89-seat RPC-1's. Two-of the units have gone into service, taking the place of four steam trains and providing new services in addition.

The public response is perhaps the most tangible proof of the greeting which Day-

liner service introduced to Nova Scotia by the D.A.R. on Aug. 20, received. But , there was other proof.

Both daily and weekly newspapers frontpaged the coming of a new era in rail transportation. Radio stations presaued the event, and one, CKEN, in Kentville, gave hourly news bulletins of the progress of the car through the Annapolis Valley and figures of how many persons had visited it at each stop.

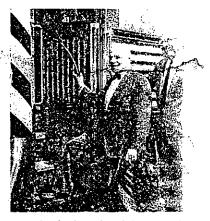
Another radio station, CJCH in Halifax, commissioned H. B. Jefferson, a former newspaperman now working for the provincial government, to write a play on the last steam train: "Last Train Through Paradise" was the title given by "Jeff" to his epic of D.A.R. history, and the play was presented the day before the Dayliner took over the passenger business. The play has since been reproduced in full in the Yarmouth Herald.

The last steam train out of Halifax, number 97 on Saturday, Aug. 18, had as a passenger Alvin "Doe" Savage of the editorial staff-of the Halifax Chronicla Herald. He recorded his impressions for his paper on Aug. 20.

This story, entitled "Last Trip for 'Puffer' Railway Era is Ended" is reproduced on page 5.



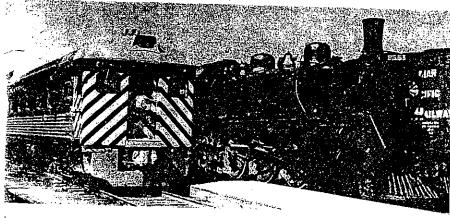
At Halifax, John Funston, of CHNS, interviews A. T. O'D.A.R. director, and J. C. McC. D.A.R. manager.



A. A. Dunphy, left, retired ager of the Dominion Atlantic way, who still makes his her Kentville, was escorted throug Dayliner by present D.A.R. me J. C. McCuaig.



An impressive sight in Halifax Station was the D.A.R. Dayliner, the first evening of the tour. Spelighting effects were set up to show off her stainless steel to best advantage.



The old and the newthis steam locomotive pulled abreast of the spanking new Dayliner at Windsor, N.S., the second day of the tour, an alert photographer recorded the change of an era in rail transportation.

The team that piloted the Dayliner through her public introduction tour is shown here with George H. Baillie, vice-president, eastern region. who rode the equipment from Digby through to Yarmouth.



### any a Tearful Eye s "Iron Horse" akes Last Run

roduced in part from an article he Halifax Chronicle Herald by л Savage,

E "IRON HORSE" made its last run s a passenger train between Halifax and month Saturday, marking the end of an in Nova Scotia railroad history.

s true no flags were flown at half mark the historic occasion. The half-century-old steam locomotives, rany of the passenger coaches just as and to go to make way for present progress. Today the Dominion Atlantic way's new diesel-operated and stream-"Dayliners" go into service, providing and better service to the railway lling public.

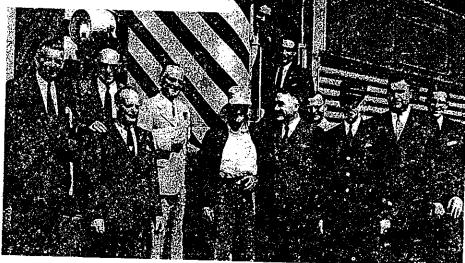
ii there were many a choked throat tearful eye all along the "Land of sacline" route Saturday as the "Iron chugged its way for the last time he passenger runs. It was most noticeamong the train crews themselves, v of them veterans of 40 years and service with the DAR. It was eviden-.... on the station platforms and among over-waving well wishers and children fields, roadsides and backyards all t the way.

### Final Chapter Written

unductor Crosby was in charge of the from Horse" run for passengers from fax to Kentville. Saturday afternoon. r members of the crew were Arthur ngineer, who brought his train into ville fon time as this final chapter DAR radroad history was written; so Comeher, fireman; N. W. Alexander, man; Albin Gutes, baggage man, ly seven passengers boarded "97" for hal trip. Along the way another four neked up including Kentville's Gladys Porter at Grand Pré. A in, it carried a full load of freight

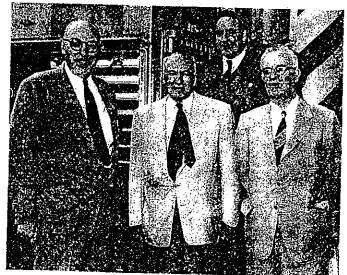
lone passenger coach, so old that al plate cannot be found, was o the rear.

even passengers aboard had mixed as about the changeover to the faster,



Eric W. Spinney, D.A.R. director from Yarmouth was on hand to greet the Dayliner to his home town. He is shown here, second from left, with J. C. Mc-Cuaig, manager, George H. Baillie, vice - president, and A. T. O'Leary, direc-





more modern and streamlined service with the diesel cars. The new train will stick hard and fast to its schedule, in order to cut the travelling time by two hours.

The "Iron Horse", it appears, made the

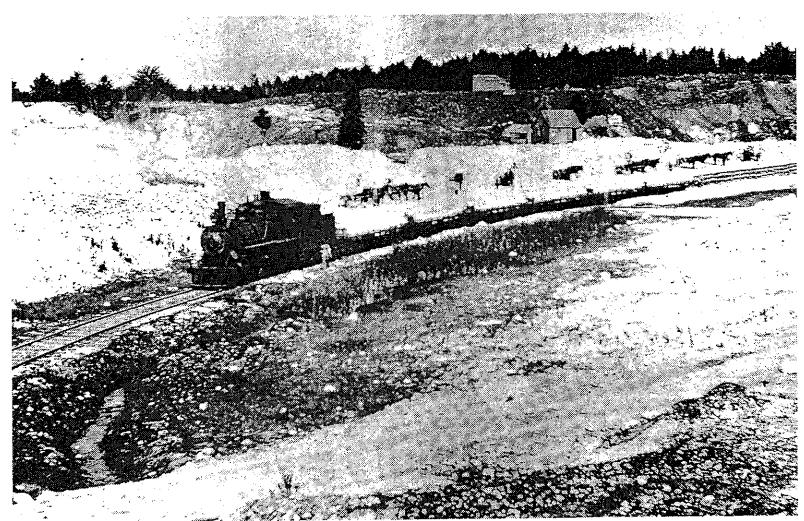
odd convenient stop for passengers.

Maurice Atwell, Black River, Kings County, was all for the speedier service. A worker in a Halifax chocolate plant, he goes home every weekend. "I will welcome the faster, cleaner and more comfortable ride," he said.

Among the "pass" passengers making the final trip were William Lighle, Kentville,

83-year-old retired DAR conductor, and his wife. Mr. Lighle was on the old Bluemee rm.

Except for the odd freight "extra" and a regular daily freight train between Rockingham and Kentville, the "Iron Horse" will be seen no more in the daytime on the Valley route. Nor will its familiar whistle he heard again at the crossings and station stops, except at night, Freight trains, operating for the most part at night, will continue to use the steam locomotive, until such time as they too are replaced by the more economical diesels.



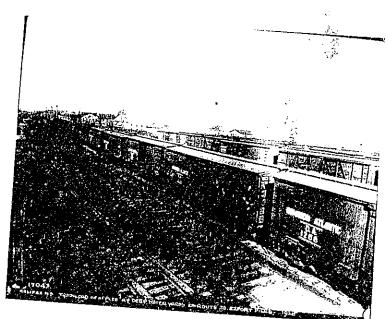
oading gypsum at the Wentworth Quarries before 1900. Note the men with their horses and durchich had brought the gypsum from the "rock front" to the train.

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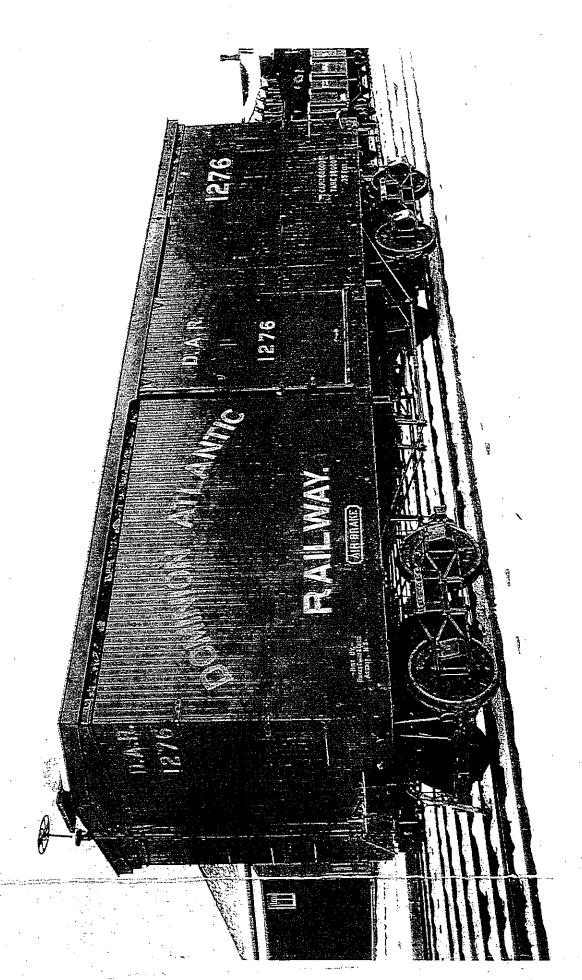
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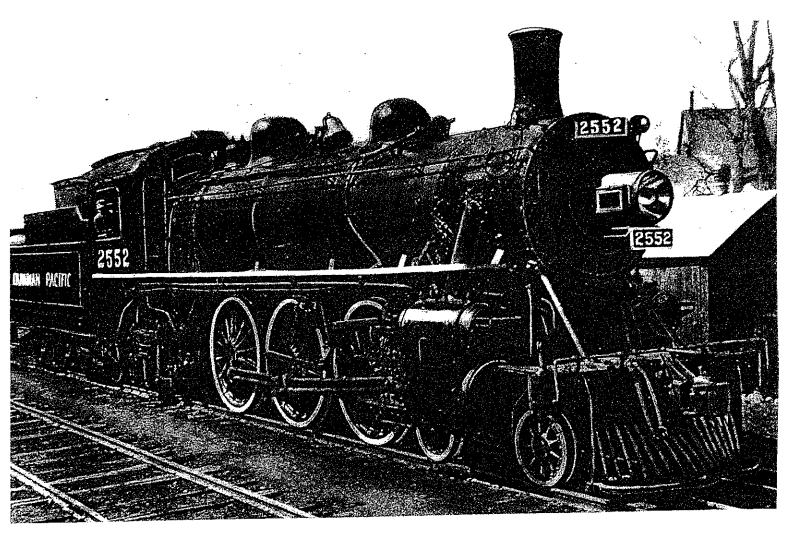
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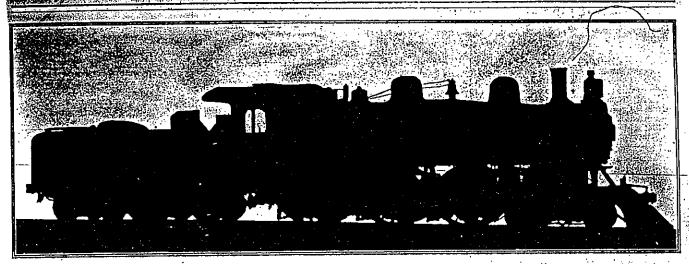


Adv 70





Modern type passenger locomotive as used by Dominion Atlantic Railway in 1937.



### C.P.R. Compound Passenger Locomotives.

The C.P.R. has recently had built at the Schenectady works of the American Locomotive Co. three to-wheel compound passenger locomotives, of which four illustrations are given on this page and page 377. These locomotives have strikingly graceful lines, the curve contour of the cab and tender being especially noticeable, as something unusual

in locomotive lines in general.

The locomotives are designed to burn bituminous coal and to operate at a working boiler pressure of 210 lbs. per sq. in.; having a total weight of 168,000 lbs., 44,000 lbs. of which is carried by the truck wheels, and 124,000 fbs. resting on driving wheels, and available for adhesion. The driving wheel centers are constructed of cast steel with Krupp crucible steel tires, having an outside diameter of 69 ins. The high and low pressure cylinders are respectively 22 and 35 ins. in diameter, with a 26-in. piston stroke. From the above details it is seen that the locomotive exerts a maximum tractive power of 25,-000 lbs. and the adhesive ratio, 4.86. The total wheel base of the locomotive is 25 ft. trins, driving wheel base 14 ft. 10 ins., and the total wheel base of locomotive and tender is 54 ft. 21/2 ins. The length over all of the locomotive is 42 ft. 11/2 ins., and the locomotive and tender 64 ft. 11g ins. The height of the center of boiler above the rails is 8 ft. 6¼ in., and the distance from top of rail to top of stack is 14 ft. 6 ins. The driving-box material is east steel, the diameter and length of driving journals being 9x12 ins. The main crank-pin journals are 7 ins. in diameter by 6½ ins. long, the main side rod crank-pin journal being 7½ ins. by 1¾, and the front and back journals 5 ins. in diameter and a½ ins. in length. The engine truck is of the 4-wheel swing bolster type, with 30-in, wheels having cast-iron spoke centers fitted with Krupp steel tires, the journals being 6 ins. in diameter by to ins. long. The horizontal thickness of high-pressure piston is 5½ ins., and of the low-pressure 4½ ins., the diameter of the piston rods being 3½ ins. The mainoid is 10 ft. 5 ins. long from center to center. The valves are of the piston type on both high and low pressure cylinders, having 6 ins. travel and an outside lap on the high-pressure side of 1½ ins., and on the low-pressure side of 1 in. The inside clearance of the high-pressure cylinder || in, the valves being set lineard-line and in full gear.

The boiler is of the extended wagon-top type with radially stayed crown sheet, the three front rows consisting of expansion stays t4 in each row, and back head and front flue sheet being braced with rod braces. The material of the barrel and outside of firebox is steel, the outside diameter of the first ring being 62½ ins., and the thickness of material in barrel and outside of firebox ½ in, and ¾ in. The horizontal seams are butt joints, sextuple riveted, with inside and outside welt strips. The circumferential seams are double riveted lap joints. The firebox is set over the frame

and is 108 3-16 ins. long by 417 ins. wide, the consequent grate area being 33.6 sq. ft. The depth of the firebox in front is 71 1/2 ins.; and at the back 641/2 ins. The steel plates entering into its construction have the following thicknesses:—Side, back and crown sheets, in, tube sheet, in. The water space in front is 41/2 ins. and 5 ins., on the sides 31/2 and 4 ins., and at the back 31/2 and 41/2 ins. The crown stays are 11 ins. in diameter, and the remaining staybolts i in, in diameter, There are 312 charcoal iron tubes no. 11, B., W.G., 2 ins. outside diameter and 14 ft. long over flue sheets. The tubes furnish 2,273-3 sq. ft. of heating surface, and the fire-box 171.96 sq. ft., the total heating surface being 2.445.26 sq. ft. This establishes a ratio of 1 sq. ft. of total heating surface for each 1 sq. ft. of total heating surface for each 50.7 lbs. of weight on drivers. The grate is of the rocking type with plain ash-pan having the part in front and behind. The exhaust pipe is of the single type, furnished with nozzles 34, 54 and 54 ins. in diameter. The distance of tip above center of boiler is 1/4 in. The smoke-box diameter is 6514 ins. outside, and its length 7314 ins., containing netting composed of no. 11 steel wire with 21/2 x 21/2 mesh. The stack is of cast-iron 14 ins. in diameter, and the height of the top of stack above smoke-box is 3 ft. 3 ins.

The tender conforms in graceful outline to the general lines of the locomotive, and is of the C.P.R. standard hopper-tank type. The tank capacity is 5,000 imperial gallons, and the coal capacity of the tender is 10 tons. The tank is constructed of steel plate, the

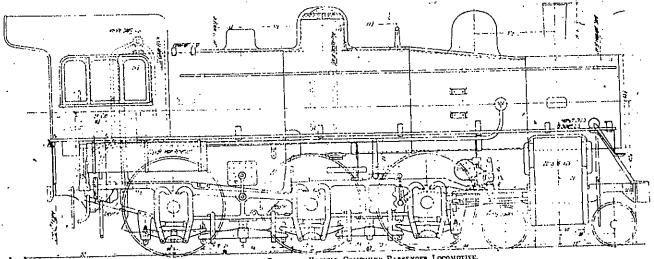
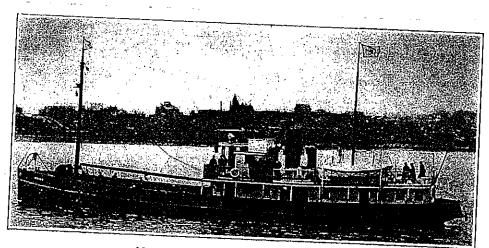


Fig. 2-Side Elevation, Canadian Pacific Compound Passenger Locomotive.



Motor Ferry Boat Kipawo, Dominion Atlantic Ry.

A full description and plans of this boat were published in Canadian Railway and Marine World for Nov. 1925, pg. 576.

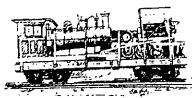
Cdu Rya Marine Worla

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### The New France Railroad.

The pole radioad which Messis Stelledin are building between their lumber tralls at New France and their what preperty in Weymouth has been attracting much attention from the day the first sod was burned. It is to cognized as a new departure or the Treaty conty bumbering indistry, and one which mode but the trial to gr wal be the second of its kind in the province and actions respects it will carpass the one row in equipation.

A viet amount of work has been to reserve to be add the read. It is not yet for short but the most constructive



The state of the state of the William For part Art

work may be said to be practically reenqueted and what remains is the rail. 16 00 favoig thial grading, etc. directly of twelve miles there have been retails wheavy cuttings found to ces ary, and one of these, not far from Weymouth is shown in one of the o conquirying directations. It will be that real ranged skill has been Scalled note play to born the track of film new reads.

The other of our albestrations shows the econd of Mesons Stelesins of give a country of Mesons Stelesins of the given as a 12 V R freight trans. The Mario Thoroson as a star trained is a

heat and powerful booking little bear maters. It is quirted ben particul oven to any view from Weynorth Cation to the neate a New Linear, and it was appoint to add for them. If have being to the bed on the part of the track already completed and beyond a shight datherd. Ty made produce at ment, which can David Accessory of the warked view or freeziety. The read will reported per different supplies in a poolity of Specific Merce Stellen Stellen Westmanner diam'r.

erand purs Alex Langton for an assault on a condable, and against W. S. Troop for chooting at his wife with intent to more der. In the Queen v. Langford the jury found a verific of guilty and the prisoner was sentunced by the pro-of-

### OF A LOCAL NATURE.

### Little Paragraphs Which Tell of the News Round About Town.

TREMS GATHERI B. DURING THE WEEK AND RECORDED IN DRIFT FOR THE BENEFIT OF THE PUBLIC.

the Mongan will be away from his town office for the next forthight. He persong teeth down Digby Neck

Remember that the Prince Rupert realf on Paesdays and Findays.

to all processing and remains to deal process are being affered for apples by ional buyers. The prospect for the winter varieties is excellent.

Irdian sommer has been making us gliol this week.

The yachis have been hauled up for the winter and the harbor is forsaken. There is a large attendance at the

Academy from conside sections. Digby would be an ideal spot for a school The Young People's Society of the

Methodist offench intend having barthday social on the evening of the 19114

Rev. Mr. Johnson left on Monday to alteral the se sions of the Presbyter on Synol at Moneton. A substitute from Holitax or Yarmouth will preach or Sander in his pulpit.

Local fishing has been very good of

Croquet is coming in again as a popular out door game. For the past year of two a had nearly died out.

The Prince Edward made her trip from Bo ton on Monday in Loudeen a of chaff been, the best vet.

The Countries subscription list is la coming co-mopolitan. We have just ad let a cartomer each from Chen cand

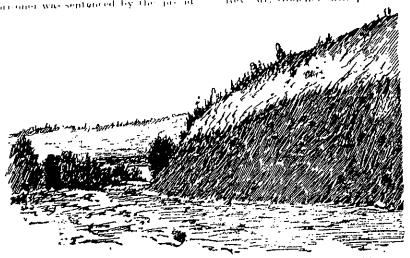
South Africa Rev. Mr. Nobles, of the Bear River Baptia, Church, has accepted the call from the Kentville Church. His Bear Rever french regret greatly to lose him a he has proved himself an invaluable

Mon X I Bandolph, of Frederic ton his denoted \$2000 to Acadia I oblige to be applied to the endowna ni hoot

Mr. Earnert Havrock, of Westport Digby Court Cases We married it francille Ferry on Western development of Clare the Privilla Hall. Mr. Hayenek took a found true bills again't come of tudy at Harvard last winter and spent the early summer in Ber-

Both the St. John and Halifax exhibitions and money. The ex penses were amusually large.

Rev. Mr. Coorcher will preach in



A CUTTING ON THE NEW PRANCE RAILROAD NEAR WEYMOUTH.

line indeed to those manches in tall - to take theretal Pharets an Quadan manner.

Digby Courier

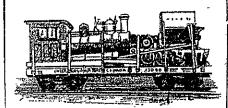
February 23

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DRIDGER TO IGOK BITCH THEM TO BE SHOULD interests and sailed for the new world

Their destination was that part of western Nova Scotia which was al ready peopled with Acadian French, who had language and religion very much in common with the new settlers Not under the tri color of their loved France, but, under that flig that em ornces the greatest freedom of thought, religion and enterprise did the new comers live. Old France gave her sons to a fresh young overseas domin ion of Britain, and French blood began to pulsate anew under the Union Jack.

The Stebelin family eventually etteled in New France, some few miles from the small town of Wey mouth, and soon began to demonstrate the characteristic energy of their race.



THE PIRST LOCOM TIVE POR THE WOOD EN BAILWAY.

They purchased a large tract of well timbered land, and began a lumber industry on a scale entirely different from that practised by their neighbors Having a very long haul to Weymouth -the nearest shipping port, they scauired a right of way for a brack, and proceeded to lay down a wooden railway on which cars were hanled by occomotives, and by this means were enabled to get their lumber conveyed to the schooners which periodically came for it. They installed a system if electric lighting, and lived lives of quiet contentment, having the respect and good will of the neighborhood.

As the years passed, the daughters and some of the sons married; one son sook up his home in New York, but he others stayed in or near the par ents' home, and performed their peace ful avocations, being rarely disturbed by untoward events- he death of the mother about four years ago being the one most felt.



A CUT ALONG THE WOODEN RAILWAY.

brave men who fought so mag nificent ly against terrible and almost over whelming odds, and is seemed as then great de egutions of though their beloved Paris would again fall into the hands of their sav age foe.

One of the brothers was a member of a cavalry battalion 800 strong, for this, and the battery t which fought and charged from day to day from the Belgium front to the Marne-until at the conclusion of the decisive stay of German progress, only 35 mounted men remained with about 100 men unmounted-all the others had fallen on the battle fields. Forty miles were the Germans drives back, then the ammunition gave out, and the invaders had time and opportunity to dig themselves in. Hereafter the war became practically a siege Dur ing the Somme offensive last July one of the boys attached to a cavalry regi ment, stood beside his horse, with his comrades, for five days and five nights, waiting for the order to charge, which never came. Lack of big guns and ammunition again prevented a general onward dash; but there was some sat isfaction in feeling that given these in abundance the allies could break their way thru the German trenches

Two of the sone Emile, the eldest, and Charles, returned together about the of sugar per month a a fortoight ago to pay a visit to their u ore. These were cited bonored lather Emile from St John of prevaling condition where he is second in command of the friends who are nuforti 205th bettalion, and Charles from to be prisoners of war Econce, where he is a lieutenant in have weekly percole sen Into this quiet calm, like a bolt the 9th regiment; and on Saturday

The 14 h July is Nat similar to our Dominion every part of the counter every battalion on the fro in Paris for a monster par considered a big honor to of the brothers was att: Eddie Doncette, of Beiliv to represent them End time of his life in Paris ac accept anything, like the that were showered upon regal treatment everywhe No they had not been and had seen nothing of return vis New York and They could nor plan to

on the way across; they future, they would in all be in some more "crap". fail-you never could tel

Here, in Canada, byc begun to feel the war; th not only is there discomf the wealthy, but absolute

Food is restricted, artiresericted, and coal almoat \$35 per ton; gas fo allowed from the mains ( hours a day, and an indi (Continued on sixt

Digby Courier

February: 23 1917

